



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P045181PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/16)	
International application No. PCT/NL 03/00492	International filing date (day/month/year) 03.07.2003	Priority data (day/month/year) 03.07.2002
International Patent Classification (IPC) or both national classification and IPC H01M4/86		
Applicant STICHTING ENERGIEONDERZOEK CENTRUM NEDERLAND		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 35.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 807 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 1 sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>		
Date of submission of the demand 31.12.2003	Date of completion of this report 16.11.2004	
Name and mailing address of the international preliminary examining authority  European Patent Office - P.B. 5810 Patentaan 2 NL-2280 HV Rijswijk - Pays Bas Tel: +31 70 340 - 2040 Tx: 31 851 epo nl Fax: +31 70 340 - 3016	Authorized Officer Reich, C Telephone No. +31 70 340-4396 	

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**International application No. **PCT/NL 03/00492****I. Basis of the report**

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*):

Description, Pages

1-4 as originally filed
5 received on 15.09.2004 with letter of 15.09.2004

Claims, Numbers

1-10 as originally filed

Drawings, Sheets

1/1 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: . which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

**V. Reasoned statement under Article 36(2) with regard to novelty, inventive step or industrial applicability:
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	1-10
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

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Re Item V**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1) Reference is made to the following document:

D1: WO0143524 A

2) NOVELTY:

The document D1 (claim 1: page 6, line 32,33) is regarded as being the closest prior art to the subject-matter of claims 1 and 7, and shows:

An anode-supported fuel cell comprising an anode support, an anode layer, an electrolyte layer and a cathode layer, said anode support being provided with a porous stress compensation layer on the side opposite the anode layer, characterised in that said stress compensation layer is a continuous porous layer.

A method for the production of an anode-supported fuel cell, comprising the production of an anode support with the anode and electrolyte applied thereto, application of the cathode layer thereto, followed by sintering of the assembly thus obtained, the production of the anode support comprising the provision of a green substrate, application of the anode layer and an electrolyte thereto, a stress compensation layer being applied to the substrate on the side away from the anode layer, characterised in that said stress compensation layer is applied over the substrate, after which the substrate is subjected to a sintering treatment,

wherein said sintering treatment is carried out at 1300-1400°C and

wherein said stress compensation layer is applied to said substrate by screen printing.

The subject-matter of claims 1 and 7 differs from this known anode-supported fuel cell and method of its production in that a porous layer with a thickness of at most 100 µm that is electron-conducting in the operational state is applied to said stress compensation layer on the side away from the anode support.

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The subject-matter of claims 1 and 7 is therefore new (Article 33(2) PCT).

3) INVENTIVE STEP:

The problem to be solved by the present invention may be regarded as the provision of an alternative anode-supported fuel cell comprising a stress compensation layer in which the number of contact points through the stress compensation layer can be increased.

The combination of the features of independent claims 1 and 7 is neither known from, nor rendered obvious by, the available prior art. Hence, the solution to this problem proposed in claims 1 and 7 of the present application is considered as involving an inventive step (Article 33(3) PCT).

4) Claims 2-6 and 8-10 are dependent on claims 1 and 7, respectively, and as such also meet the requirements of the PCT with respect to novelty and inventive step.

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5 within the scope of the present invention. That is to say, rights are requested for an assembly consisting of an anode-supported cell provided with a stress compensation layer according to the invention, in combination with the electron-conducting layer applied thereto, both in the green and in the sintered state.

5 A current collector, indicated highly diagrammatically, presses against layer 7.

Fig. 2 shows a plan view of layer 6 after application to layer 2 by screen printing. The very regular hexagonal pattern of the openings extending through layer 6 which link substrate 2 and layer 7 can clearly be seen from this figure.

10 Although the invention has been described above with reference to a preferred embodiment, it will be understood that numerous modifications can be made thereto without going beyond the scope of the present invention as described in the claims.

REVISED SHEET

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